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MATURITY INDICES FOR PEACHES

Preliminary Report of Studies Made in 1953

By

M. H. Haller, Senior Horticulturist, and
C. C. Craft, Associate Physiologist

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Report of a study made under the Agricultural Marketing Act of 1946 (RMA, Title II).

MATURITY INDICES FOR PEACHES

INTRODUCTION

Earlier studies of maturity indices for Elberta peaches made in 1948 and 1949 were reported[1/] in 1952. Study of maturity indices was resumed in 1953 and expanded to include other commercially important varieties.

The report of the previous studies placed emphasis on firmness, or pressure-test readings, as an index of maturity, and tentative standards of maturity for Elberta peaches were set at 16 pounds when the pressure test was made on the cheeks or at 14 pounds when it was made on the suture. The 1953 studies were designed to test the practical application of the tentative standards for Elberta and to obtain further data on maturity standards for Elberta and certain other varieties.

A maturity standard that can be applied to individual peaches is desirable to enable inspectors to determine the percentage of immature fruit in any given sample and thus establish whether the total defects, including immature fruit, come within the 10-percent tolerance. The data in this report, as in the previous one, are presented and interpreted from this standpoint.

Definition and Measurement of Maturity

"Mature" is defined in the U. S. Standards for peaches as meaning that the "peach has reached the stage of growth which will insure a proper completion of the ripening process." The ripening process in peaches consists primarily of (1) change in the color of the skin and flesh from green to yellow, (2) change in the texture of the flesh from hard to soft and juicy, and (3) change in taste - with loss of bitterness and sourness and development of aroma. What constitutes proper completion of these processes is not easy to define. Some peaches that would be considered distinctly immature when picked will turn yellow, become soft and juicy, and lose acidity and bitterness. Such peaches may not become as soft or develop as much flavor as fruit picked when more mature, but they may have properly completed the ripening process. If so, "proper completion of the ripening process" is not a satisfactory definition of a mature peach.

One criterion sometimes suggested is that immature peaches shrivel before they become ripe. Moisture loss would depend on temperature, humidity, and rate of air movement around the peaches as well as on their maturity. Peaches that seemed distinctly immature ripened without appreciable shrivel when held in closed baskets where high humidity prevailed, although more mature peaches shriveled when exposed to the air of the room in which the baskets were held. If shriveling is to be used as a measure of maturity

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1/ Haller, M. H. and Smith, M. A. Pressure test readings as a maturity index for Elberta peaches. U. S. Dept. Agr. H. T. & S. Office Report 290. 7 pp. 1952. Processed.

the conditions under which the fruit is ripened must be standardized. Under standardized conditions shriveling before ripening may depend on the period required for ripening.

Ripening processes accompany maturation of the fruit on the tree. The more mature the peaches are when picked the less will be the period required for them to ripen after harvest. Consequently the time required for peaches to ripen constitutes the most satisfactory measure of their maturity. Temperature is the primary environmental factor governing the rate of ripening, but in the range 70° to 90° F. the rate does not change appreciably. The prevailing air temperatures usually fall within this range during the marketing season for peaches. This measure of maturity has been used in these studies. A peach was considered immature if it did not ripen in a predetermined number of days. This number varied somewhat with the different varieties. It was established by ripening fruit of different maturities and selecting the period in which 80 percent of the moderately mature (medium-mature) peaches ripened and less than 40 percent of the least mature ripened.

MATERIAL AND METHODS

An index of maturity must be applicable to fruit grown over a wide range of cultural and climatic conditions. For this reason, samples of peaches for these investigations were obtained from as many different growers as possible in Georgia, South Carolina, Virginia, West Virginia, Maryland, and southern Pennsylvania.

Both mature and immature fruit must be included in the tests so that differences between these stages of maturity can be measured. In general, commercially picked fruit represents only mature fruit. So that the experimental lots would contain immature as well as mature fruit, peaches were picked from trees in all stages of maturity available in sizes shipped commercially (at least 1 3/4 inches in least diameter). Each picking or lot of peaches was subdivided on the basis of ground color into two samples. One, designated "least mature," was usually greener than commercially picked fruit. The other, designated "medium mature," usually showed a slight break in ground color similar to that in most commercially picked lots.

Each sample consisted of approximately 1/2 bushel of peaches. Twenty-five peaches from each sample were examined at harvest and the rest were held at the prevailing temperatures in lined, ventilated half-bushel baskets covered with pads. The examination at harvest consisted of determination of (1) firmness by a pressure test with a 5/16-inch-diameter plunger on both pared cheeks and the pared suture, (2) ground color by comparison with a color chart ranging from dark green (No. 1) to a deep orange (No. 14), (3) percentage of surface colored red, (4) size of fruit to the nearest 1/4 inch, (5) pit color (white, pink, red or brown) and (6) pit freedom. A numerical value for pit color was obtained by scoring white as 0, pink as 4 and red as 8. A count of pits with 10 percent of surface browned was made.

The portions of the samples held for ripening were examined at 2-day intervals for 10 days and the numbers of unripe, ripe, and decayed peaches were recorded. The peaches were considered ripe when they were judged by feel to be fully soft and in prime condition for eating. The softness of the ripe peaches was not determined by pressure test. The ripe and decayed

peaches were discarded at each examination. In most lots decay was not serious. The percentage that ripened at each interval was computed on the basis of the original number of fruits minus the cumulative number discarded because of decay. Subtracting the decayed fruits did not entirely correct this source of error as the total percentage that ripened plus the percentage unripe at the final inspection is not always 100.

The percentage of fruit that ripened in a given number of days was related to the pressure-test readings at harvest in the following manner. In each sample it was assumed that the fruits that ripened first had been the softest at harvest, the fruits that ripened last had been the firmest, and those that ripened at intermediate times had been intermediate in firmness. For example, in one sample 20 percent of the peaches ripened in 4 days, 36 percent in 6 days, and 44 percent in 8 days. The five softest peaches (20 percent of the 25 peaches tested) had pressure-test readings between 13.0 and 14.3 pounds on the cheeks, the 9 (36 percent) intermediate in firmness tested between 14.8 and 15.8 pounds, and the 11 (44 percent) that were firmest tested between 16.0 and 18.5 pounds. The corresponding ranges in firmness at the suture were 11.0 to 12.0 pounds for the 5 softest, 12.5 to 13.5 pounds for the 9 intermediates and 14.0 to 16.0 pounds for the 11 firmest. Average ranges in firmness for each ripening interval were obtained by averaging the ranges in firmness for all samples in which peaches ripened for that time interval. For presentation in tables the averages were adjusted to reduce overlapping in ranges for different periods of ripening and usually were rounded off to the nearest half pound. Of primary interest is the range of pressure-test readings for peaches ripening in the maximum time considered necessary for mature peaches above which the peaches were considered immature. The upper limit of this range is suggested as the maturity index for a variety.

Records were obtained on the following varieties: Dixired, Redhaven, Golden Jubilee, Early Hiley, Halehaven, Sullivan Elberta, and Elberta.

RESULTS

Dixired - Peaches of the Dixired variety develop red color and start turning yellow while still very hard and apparently immature. The tendency is to pick such fruit somewhat early. Dixired peaches tend to soften and become ripe first at the tip and along the suture and last at the stem end. They become fully yellow and look ripe while still firm and unripe around the stem, but in these tests they were not counted as ripe until they were soft at the stem end.

Lots of Dixired peaches obtained from 14 orchards in Georgia were separated into least mature and medium-mature samples on the basis of ground color of the greener side of the peaches, as the exposed side was usually entirely red. The average ground color for the least mature samples (with one exception) ranged from 8.2 to 9.3, whereas for the medium-mature samples it ranged (with one exception) from 9.5 to 10.6 (table 1). The pressure-test readings for the least mature samples averaged 2.4 pounds more than those for the medium-mature samples (16.9 and 14.5 pounds on the cheeks and 14.5 and 12.1 pounds on the suture for the least mature and medium-mature samples respectively). Peaches in the least mature samples required an average of about 3.5 days longer to ripen.

The data on time required for the peaches to ripen and on range in corresponding pressure-test readings at harvest are given in table 2. These data show that 84 percent of the medium-mature peaches and only 28 percent of the least mature ones were ripe within 10 days. This finding indicates that Dixired peaches ripening in 10 days or less might be considered mature and those requiring more than 10 days immature. For peaches that ripened in 10 days, the maximum pressure-test readings of 16.5 pounds on the cheeks and 14.0 pounds on the suture are proposed as maturity standards for Dixired peaches. Only 1 of the 14 samples classed by appearance at harvest to be least mature would have passed as mature (table 1) (less than 10 percent of the peaches in the sample tested firmer than the proposed pressure-test standards). About half of the medium-mature samples also would have failed to pass, but generally by narrow margins; therefore somewhat closer picking or grading could have brought most of them within the standard. The least mature samples averaged 61, 55, and 72 percent of the peaches immature on the basis of pressure-test readings on cheeks, pressure-test readings on suture, and ripening response, respectively, as compared with corresponding values of 13, 11, and 14 percent for medium-mature samples. These values indicate good agreement between the estimates of peaches that were immature on the bases of ripening response and of the pressure-test standards proposed.

Redhaven - Redhaven peaches are similar to Dixired peaches in that they start turning yellow and develop considerable red color while still hard and apparently immature. Redhaven trees tend to set heavy crops and consequently to produce small fruit unless they are severely thinned. Peaches of this variety ripened first near the skin and last near the pit. Therefore it was difficult to determine when they were ripe as they often felt ripe at the surface while still unripe at the pit.

The ground color of the peaches in the least mature samples averaged 9.9 at harvest and that of the medium-mature samples 10.8 (table 3), a difference of only one point on the color chart. There was also relatively little difference in the average firmness -- the medium-mature samples tested slightly more than 1 pound softer. The pit color usually varied from white to pink -- mostly pink in the least mature samples and generally pink in the medium-mature ones. The pits were free in only a third of the peaches in the medium-mature samples and in a fifth of those in the least mature samples. These differences are not distinct enough to constitute satisfactory indices of maturity.

As shown in table 4, about 62 percent of the peaches in the least mature samples failed to ripen in 8 days, whereas only about 22 percent of the medium-mature ones failed to do so. It would seem reasonable, therefore, to require that for Redhaven peaches to be mature they must ripen in 8 days or possibly in 9 days so that some of the 22 percent that failed to ripen in 8 days would ripen in the period allowed. The upper limits in pressure-test readings on peaches ripening in 8 days were 15 pounds on the cheeks and 12.5 pounds on the suture. Adding a half pound to these figures to approximate the limit for 9 days' ripening would give pressure-test indices of 15.5 pounds on the cheeks and 13.0 pounds on the suture as the maximum firmness of mature Redhaven peaches.

On the basis of a pressure-test reading of 15.5 pounds on the cheeks as a standard, only 7 of the 12 least mature samples would be graded immature

(table 3) and only 6 of the medium-mature samples would be scored mature. On the basis of a pressure-test reading of 13 pounds on the suture as the standard, 10 of the 12 least mature samples would be scored immature and 6 of the 11 medium-mature would be scored mature. However, on the basis of ripening response (table 3) of both least mature and medium-mature samples, 19 of 23 samples would be scored immature because more than 10 percent failed to ripen in 8 days. Of these 19, 11 would also be scored immature on the basis of the 15.5-pound pressure-test reading on the cheeks and 13 on the basis of the pressure-test readings on the suture (more than 10 percent testing firmer than the standards).

Golden Jubilee - Golden Jubilee is a variety that is difficult to pick at the proper maturity. Unlike fruit of Dixired and Redhaven, the fruit of Golden Jubilee sometimes remains green until it becomes somewhat soft at the suture. The tendence is to leave the fruit of this variety on the tree until it begins to show a break in color by which time it may be too soft at the suture to ship satisfactorily. The fruit ripens rather rapidly and unevenly and becomes very soft when fully ripe.

Samples of Golden Jubilee peaches were obtained from 15 sources (table 5) and, depending on source, showed considerable variation in ground color and red color at both stages of maturity. However, the medium-mature samples averaged 2 points more yellow (7.3 and 9.1 of the color chart) than the least mature ones and had about double the amount of red color. The peaches in the least mature samples ripened in an average time of 8 days with only 13 percent requiring more than 8 days (table 6). Peaches in the medium-mature samples required an average of only 5 days to ripen; only 9 percent required more than 6 days. For peaches of this variety to be mature, therefore, they should ripen within 6 days after harvest when held at room temperatures. The maximum average pressure-test readings for peaches ripening in 6 days was 16.5 pounds on the cheeks and 13.5 pounds on the suture. By applying these standards to the experimental samples it was found that 11 of the 13 least mature samples would be scored immature by tests on either the cheeks or the suture (more than 10 percent above the standards). However, less than half of the medium-mature samples would be rated mature. Raising the standards to 17.0 and 14.0 pounds reduced the number of the least mature samples that would be rated immature to 8 of 13 (table 5) and increased the number of medium-mature samples that would be rated mature to 9 (readings on cheeks) or 8 (readings on suture) out of 15. So that a larger number of medium-mature samples would pass as mature it seems desirable to use 17.0 pounds on the cheeks or 14.0 pounds on the suture as standards for maturity of Golden Jubilee peaches. Of the 28 samples, there were 18 in which more than 10 percent of the peaches required longer than 6 days to ripen and which were therefore considered immature on the basis of ripening response (table 5). Eleven of these were also immature on the basis of a pressure-test standard of 17.0 pounds on the cheeks and 12 of them were immature on the basis of a pressure-test standard of 14.0 pounds on the sutures. Of the 10 samples considered mature on the basis of ripening response, 7 would also be scored mature on the basis of the pressure-test standards for either the cheeks or the suture.

Early Hiley - Early Hiley is a white-fleshed variety that is being largely replaced by newer yellow-fleshed varieties maturing in about the same period. It is still of considerable importance in Georgia, where samples were obtained from 14 different orchards.

The ground color of the skin was greener at harvest than on the Golden Jubilee samples and there was very little difference between the least mature and medium-mature samples (table 7). There were no distinct differences in pit color or pit freedom between the least mature and medium-mature samples. The pits were generally free at both stages of maturity and were beginning to turn pink.

The average times for peaches to ripen were 9 days in the least mature samples and about 7 days for those in the medium-mature samples. A large proportion of the peaches in the least mature samples required 8 days or more to ripen, whereas most of those in the medium-mature samples ripened in 8 days or less (table 8). As 20 percent of the peaches in the medium-mature samples required more than 8 days to ripen it seems desirable to base the standard for maturity on a pressure-test reading, at least on the cheeks, slightly higher than the maximum for 8 days; and a reading of 15.0 pounds on the cheeks or of 13.5 pounds on the suture is suggested. By applying these standards to the experimental samples it is found that 9 of the 14 least mature samples would be scored immature and that 4 of the 13 medium-mature samples would also be scored immature on the basis of pressure-test values on the cheeks (table 7), whereas on the basis of pressure-test readings on the suture 11 of the least mature and 6 of the medium-mature samples would be scored as immature. Of the 27 samples there were 20 in which over 10 percent of the fruit required more than 8 days to ripen and were immature on this basis. Of these 20 samples, 11 and 14 were also immature on the basis of pressure-test readings on the cheeks and the suture, respectively. Only 7 samples were judged mature on the basis of ripening response and 5 and 4 of these were judged mature on the basis of pressure-test readings on the cheeks and suture, respectively.

Halehaven - Samples of Halehaven peaches were obtained from 21 sources (table 9). The ground color of peaches in the least mature samples generally corresponded to No. 7 of the color chart or greener, whereas those in the medium-mature samples were generally more yellow than No. 7. Although the red color averaged considerably more on the medium-mature samples (28 percent) than on the least mature (16 percent), there was great variation among samples, with much red on some of the least mature samples. The pit color averaged slightly more red in the medium-mature samples than in the least mature samples, but this too varied greatly within each maturity group. Likewise, pit freedom averaged somewhat higher in the medium-mature samples than in the least mature samples, but the differences were not consistent enough for this to be of much value as a maturity index. More than 80 percent of the peaches had free pits in 14 of 21 medium-mature samples and in 12 of 21 least mature samples.

In the least mature samples a larger proportion (73 percent) of the peaches required 8 days or more to ripen, whereas in medium-mature samples most of the peaches (78 percent) ripened in 8 days or less (table 10). The maturity of this variety might, therefore, be based on whether they ripen in 8 days or less. Peaches ripening in 8 days had average pressure-test values of 16.0 to 17.0 pounds on the cheeks and about 13.8 to 15.0 pounds on the suture (table 10). The upper limit of these ranges of 17.0 pounds on the cheeks or 15.0 pounds on the suture are suggested as standards of maturity for Halehaven peaches. By applying these standards to the experimental samples it is found (table 9) that in 23 of 42 samples more than 10 percent of the fruit required longer than 8 days to ripen and the samples would be

judged immature on this basis. Of these 23 samples, 21 and 20 were immature on the basis of the pressure-test standards of 17.0 pounds on the cheeks and 15.0 pounds on the suture, respectively. Of 19 samples judged mature on the basis of ripening response, 14 and 13 were also mature on the basis of the pressure-test standards for cheeks and suture, respectively.

Sullivan Elberta - Samples of Sullivan Elberta peaches were obtained from 26 sources (table 11). The difference in ground color between the least mature and medium-mature samples averaged less than 1 point on the color chart. In samples from different sources there was considerable difference in ground color that was not closely correlated with the firmness and maturity of the fruit. The medium-mature samples averaged appreciably more red color, but there was much variation between orchards and the least mature samples from some orchards had more red than the medium-mature peaches from others. There was little or no difference in pit color or pit freedom between the least mature and the medium-mature samples. The average time required for peaches in the least mature samples to ripen was 7.5 days and for those in the medium-mature ones, 5.8 days. More than 50 percent of the peaches in the least mature samples required 8 days or more to ripen, whereas about 86 percent of those in the medium-mature samples ripened in 8 days or less (table 12). Peaches requiring longer than 8 days to ripen might therefore be considered immature. Using the nearest half pound above the pressure-test reading ranges in table 12 indicates that peaches testing 17.5 pounds or less on the cheeks or 15.5 pounds or less on the suture generally ripened in 8 days or less and these pressure-test values are suggested as maturity standards for Sullivan Elberta.

The data in table 11 show the percentage of peaches in the different samples that were firmer than suggested maturity requirements of testing 17.5 pounds or less on the cheeks or 15.5 pounds or less on the suture and ripening in 8 days or less. It is apparent that the separation of the peaches at harvest into least mature and medium-mature samples did not separate them into immature and mature lots. Both the least mature and the medium-mature samples from some orchards were apparently mature, whereas both samples from other orchards were immature. But in practically all instances the medium-mature sample was distinctly more mature than the least mature sample from the same source.

On the basis of ripening response, 20 of the 49 samples were immature (over 10 percent requiring longer than 8 days to ripen). Of these 20 samples, 16 and 14 were also immature on the basis of pressure-test standards for cheeks and suture, respectively. Of the 29 samples that were mature on the basis of ripening response, 22 and 23 were also mature on the basis of the pressure-test standards for cheeks and suture, respectively. These findings indicate fairly consistent correlation between the different measures of maturity.

Elberta - Samples of Elberta peaches were obtained from 29 sources, and were mostly commercially picked fruit. In such cases a single composite sample was usually used although in some instances the fruit was divided into two stages of maturity. When this was done the samples designated least mature represented commercial picking maturity and apparently were usually mature.

The ground color of the medium-mature peaches averaged slightly lighter green than that of the least mature peaches, with considerable variation within

each maturity (table 13). The medium-mature samples averaged more than twice as much red color as the least mature samples, but there was much variation within each stage of maturity. The pit color averaged slightly more red in the medium-mature samples than in the least mature samples, but in most instances little or no difference was recorded. The pits were all or nearly all free regardless of maturity in all samples grown in Georgia and South Carolina. There was some tendency for the pits to cling in samples grown in Maryland, West Virginia, and Pennsylvania, particularly in the least mature samples.

Peaches in the least mature samples required about 2.4 days longer to ripen than did those in the medium-mature samples and 2 days longer than those in samples from commercial pickings. Only 11 percent of the peaches obtained from commercially picked fruit required more than 8 days to ripen (table 14). It seems reasonable, therefore, to require that Elberta peaches ripen in 8 days or less to be considered mature. The average maximum pressure-test readings for peaches ripening in 8 days were 16.0 pounds on the cheeks and 14.0 pounds on the suture (table 14) and these values might be used as standards of maturity. These standards, based largely on commercially picked fruit, are identical with those suggested earlier[2/] for Elberta peaches in experimentally picked samples except that 10 days were allowed for ripening.

An examination of the data for individual samples (table 13) shows that in 14 of 42 samples more than 10 percent of the peaches required more than 8 days to ripen and were immature on this basis. Only 9 of the 14 would also be scored immature on the basis of a pressure-test standard of 16.0 pounds on the cheeks and only 8 of them on the basis of pressure-test readings on the suture. Of the 42 samples 28 were mature on the basis of ripening response. Of these, 19 and 20 were also mature on the basis of the pressure-test standards for the cheeks and sutures, respectively.

DISCUSSION

The correlation between the percentages that were immature on the basis of time required to ripen and the percentages that were immature on the basis of pressure-test standards is not as high as is desirable for either Elberta or the other varieties studied. An examination of the data indicates that the inconsistencies were due largely to the difficulty of deciding when the fruit had become ripe. It is believed therefore, that the pressure-test standards based on the averages for all samples are more reliable than is indicated by the inconsistencies in certain individual samples.

The pressure-test standards of maturity suggested for the seven varieties studied are summarized in Table 15. The results indicate that the varieties differ in firmness at maturity too much for a common standard to be applied to all varieties. Certain varieties may be grouped together. On the basis of tests on the suture, Dixired, Golden Jubilee, and Elberta have the same maturity standard. It is particularly un-

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2/ See footnote 1 page 1.

fortunate that Sullivan Elberta and Elberta differ since the Sullivan Elberta is frequently packed as Elberta. Under these circumstances the Elberta standard would require that the Sullivan Elberta peaches be picked in a more advanced stage of maturity than necessary.

Pressure-test readings made at the suture usually were 1 to 4 pounds less than those made at the cheeks but readings for the 2 positions were closely correlated within each variety. Indices of maturity based on tests on the suture should therefore be as accurate a measure of maturity as tests on the two cheeks and would be easier to apply as only one test per peach would be necessary. There was some indication that a maturity index based on tests on the suture was more accurate than one based on tests on the cheeks for Golden Jubilee. With this variety the correlation between the percentage of peaches requiring more than 6 days to ripen and the percentage testing higher than the pressure-test standard for the suture was higher ($r = 0.60$) than the correlation between the percentage of peaches requiring more than 6 days to ripen and the percentage testing higher than the pressure-test standard for the cheeks ($r = 0.39$).

Although the primary objective of this study was to differentiate immature and mature peaches the data also indicate the firmness of peaches at different stages of maturity requiring different numbers of days to ripen. Such information should be of interest in connection with the harvesting of peaches in advanced stages of maturity, and as a measure of the potential life of peaches picked at the different degrees of firmness. Data showing the relation of firmness at harvest and maturity and the approximate time at room temperatures required for the fruit to ripen appear in table 16. Most of the data on firmness were obtained with standard pressure testers that register 3 to 30 pounds. As peaches become fully ripe they soften to less than 3 pounds, which does not register on these instruments. However, a more sensitive tester that registers 0 to 10 pounds is now available and was used on some Elberta peaches in order to obtain a measure of the firmness of ripe peaches to include table 16. Sixteen tasters scored the relative ripeness and quality of peaches of different degrees of softness. Peaches with pressure-test readings of 4 pounds to less than 1 pound on the cheeks were usually scored ripe, but 25 percent of the tasters scored as unripe those testing 4 to 3 and 3 to 2 pounds and 25 percent scored as overripe those testing less than 1 pound. However, peaches testing less than 1 pound had the highest average score for flavor and quality when eaten without added sugar. These limited results indicate that Elberta peaches of optimum ripeness have a pressure-test reading of less than 2 pounds and that peaches testing about 2 to 5 pounds or possibly somewhat higher are less desirable but sufficiently satisfactory for eating to be considered firm-ripe. The tentative ranges in pressure-test readings for ripe peaches were added to table 16 but were not as high as the lowest figure in the range for those found ripe in 2 days (designated 3 - 1 days). A range between the highest figure for the ripe peaches and the lowest for those ripening in 3 - 1 days was added to the table and designated overmature and firm-ripe. Peaches in this stage are likely to be soft at the suture or on the shoulder and very subject to bruising in normal commercial handling. Peaches ripening in 1 to 3 days have sometimes been designated "tree ripe" and have been used in studies on the marketing of fruit of very advanced maturity. The pressure-test readings for peaches in this stage

of maturity were usually in the range of 12.0 to 10.0 pounds on the cheeks.

If a pressure-test standard for peaches is to be used it would be necessary to observe certain precautions in the use of the pressure tester. Before use a tester should be checked against accurate scales to see that it is registering correctly. In forcing the plunger into the fruit, juice is usually squeezed out that may squirt onto the tester. The tester must be kept clean of this and other dirt so that it will operate freely. The skin is removed at the point to be tested. This should be a very thin slice particularly with small fruit so that the plunger can penetrate the required distance (5/16 of an inch) without hitting the pit. Within limits the speed at which force is applied to the tester does not appreciably influence the reading, but excessively slow or excessively rapid application of force may do so. A steady application of force increasing at the rate of about 4 pounds per second is suggested as a satisfactory speed.

Table 1.--Ground color at harvest of Dixired peaches grown in Georgia in least mature and medium-mature samples and percentages immature on basis of proposed pressure-test standards (testing higher than 16.5 pounds on cheeks and 14.0 pounds on suture) and period required for ripening (more than 10 days)

Source of fruits (Orchard)	Harvest date	Least mature samples				Medium-mature samples			
		Ground color at harvest	Percentage of fruit considered immature on basis of: Cheek pressure-test reading of more than 16.5 pounds	Suture pressure-test reading of more than 14.0 pounds	Ripening period of more than 10 days	Ground color at harvest	Percentage of fruit considered immature on basis of: Cheek pressure-test reading of more than 16.5 pounds	Suture pressure-test reading of more than 14.0 pounds	Ripening period of more than 10 days
	1953	Color No.	Percent	Percent	Percent	Color No.	Percent	Percent	Percent
LJG	May 25	7.3	8	0	51	8.6	0	4	0
R	" 26	8.6	36	20	69	9.9	0	4	12
JBE	" 27	9.1	52	56	98	9.5	4	4	50
CHM	" 28	9.0	52	60	82	9.8	20	8	0
ADW	" 28	8.3	88	84	93	9.6	32	40	30
JW	" 29	9.0	76	56	56	10.4	8	8	8
JL	" 29	8.9	44	28	96	9.6	4	4	26
JFD	June 1	9.2	32	28	44	10.5	0	0	15
C&R	" 2	8.9	88	92	72	10.3	16	12	0
CLM	" 3	8.2	76	80	81	9.6	24	24	22
B	" 3	9.2	80	72	70	10.3	20	12	13
C	" 4	9.3	76	60	77	10.1	20	8	24
ADW	" 5	9.3	84	76	49	10.0	20	20	3
AES	" 10	--	--	--	--	10.6	16	12	0
	Average	8.8	61	55	72	9.9	13	11	14

Table 2.--Dixired peaches ripening in various periods at room temperature and the respective ranges in pressure-test readings at harvest, 1953

Period at room temperature	Ripe peaches in-		Range in pressure-test readings at harvest on-	
	Least mature sample	Medium-mature sample	Cheek	Suture
Days	Percent	Percent	Percent	Percent
2	0	3	10.0 - 12.0	7.0 - 9.5
4	0	14	12.0 - 13.0	9.5 - 11.0
6	1	21	13.0 - 14.5	11.0 - 12.0
8	6	22	14.5 - 15.5	12.0 - 13.0
10	21	24	15.5 - 16.5	13.0 - 14.0
10+	72	15	16.5+	14.0+

Table 3.--Ground color at harvest of Redhaven peaches in least mature and medium-mature samples and percentage immature on basis of proposed pressure-test standards (testing higher than 15.5 pounds on cheeks and 13.0 pounds on suture) and period required for ripening (more than 8 days)

Source of fruits		Harvest	Least mature samples				Medium-mature samples			
Orchard	State	date	Ground color at harvest	Fruits considered immature on basis of-			Ground color at harvest	Fruits considered immature on basis of-		
				Cheek pressure-test reading of more than 15.5 pounds	Suture pressure-test reading of more than 13.0 pounds	Ripening period of more than 8 days		Cheek pressure-test reading of more than 15.5 pounds	Suture pressure-test reading of more than 13.0 pounds	Ripening period of more than 8 days
		1953	Color No.	Percent	Percent	Percent	Color No.	Percent	Percent	Percent
K&J	Ga.	June 9	10.2	24	32	61	11.9	8	4	18
C&R	"	" 11	9.8	68	48	88	10.5	20	20	29
RC&H	"	" 12	9.0	4	4	81	9.5	0	0	32
H	"	" 16	9.6	0	0	67	11.3	0	0	44
AES	"	" 17	9.1	8	12	48	10.4	0	4	0
PPC	"	" 17	9.3	0	16	73	9.8	0	0	34
BMG	S.C.	" 26	9.9	16	20	14	11.0	0	0	0
AES	"	" 27	11.5	56	48	91	12.2	28	16	32
BG	"	" 29	10.6	8	16	5	--	--	--	--
HP	"	" 29	10.2	36	68	84	11.2	20	32	0
HB	Pa.	July 21	9.5	100	76	61	10.2	44	44	29
H	"	" 21	9.7	88	84	71	--	64	32	28
	Average		9.9	34	35	62	10.8	17	14	22

Table 4.--Redhaven peaches ripening in various periods at room temperature and the respective ranges in pressure-test readings at harvest, 1953

Number of days at room temperature	Percentage of peaches ripening in		Range in pressure-test readings at harvest on-	
	Least mature samples	Medium-mature samples	Cheeks	Suture
	Percent	Percent	Percent	Percent
2	0	4	10.5 - 12.0	8.0 - 9.0
4	3	19	12.0 - 13.0	9.0 - 10.5
6	11	31	13.0 - 14.0	10.5 - 11.5
8	22	21	14.0 - 15.0	11.5 - 12.5
10	20	15	14.5 - 15.5	12.5 - 13.5
10+	42	7	15.5+	13.5+

Table 5.--Ground color at harvest of Golden Jubilee peaches in least mature and medium-mature samples and percentages immature on basis of proposed pressure-test standards (testing higher than 17.0 pounds on cheeks and 14.0 pounds on suture) and period required for ripening (more than 6 days)

Source of fruits: Orchard	State	Harvest date	Least mature samples: Ground color No.	Least mature samples: Fruits considered immature on basis of- Cheek pressure-test reading of more than 17.0 pounds	Least mature samples: Fruits considered immature on basis of- Suture pressure-test reading of more than 14.0 pounds	Least mature samples: Fruits considered immature on basis of- Ripening period of more than 6 days	Medium-mature samples: Ground color No.	Medium-mature samples: Fruits considered immature on basis of- Cheek pressure-test reading of more than 17.0 pounds	Medium-mature samples: Fruits considered immature on basis of- Suture pressure-test reading of more than 14.0 pounds	Medium-mature samples: Fruits considered immature on basis of- Ripening period of more than 6 days
		1953		Percent	Percent	Percent		Percent	Percent	Percent
JBE	Ga.	June 9	6.2	0	0	53	6.6	0	4	11
W	"	" 13	7.3	0	0	29	8.3	0	0	7
W-G	S.C.	" 26	6.2	40	48	74	9.6	32	24	19
R-G	"	" 26	7.1	24	36	78	9.2	20	36	17
AES	"	" 27	6.6	4	20	81	8.8	0	0	36
W	"	" 30	6.5	96	68	77	9.5	8	12	7
B	"	" 30	8.2	64	84	64	10.3	52	20	0
PB	"	July 1	--	--	--	--	7.7	12	0	15
S	Va.	" 22	8.1	40	52	46	10.0	32	32	12
RSD	Md.	" 24	7.9	48	28	37	9.4	52	20	0
PG	Pa.	" 27	9.5	8	0	3	10.2	0	0	0
JK	"	" 28	6.7	8	8	60	8.8	0	0	0
H	"	" 29	7.4	16	4	0	9.4	8	0	0
CEB	"	" 30	6.8	28	16	51	8.9	0	12	12
FB	"	" 31	--	--	--	--	9.2	0	0	0
	Average		7.3	29	28	50	9.1	14	11	9

Table 6.--Golden Jubilee peaches ripening in various periods at room temperature and the respective ranges in pressure-test readings at harvest, 1953

Period at room temperature	Ripe peaches in-		Range in pressure-test readings at harvest on-	
	Least mature samples	Medium-mature samples	Cheeks	Suture
Days	Percent	Percent	Percent	Percent
2	0	5	12.0 - 13.5	8.0 - 10.0
4	15	55	13.5 - 15.5	10.0 - 12.5
6	34	31	15.5 - 16.5	12.5 - 13.5
8	38	9	16.5 - 17.5	13.5 - 14.5
10	8	0	17.5 - 18.5	14.0 - 15.0
10+	5	0	18.5+	15.0+

Table 7.--Ground color at harvest of Early Hiley peaches grown in Georgia in least mature and medium-mature samples and percentages immature on basis of proposed pressure-test standards (testing higher than 15.0 pounds on cheeks and 13.5 pounds on suture) and periods required for ripening (more than 8 days)

Source of fruits (Orchard)	Harvest date	Least mature samples				Medium-mature samples			
		Ground color No.	Fruits considered immature on basis of-			Ground color No.	Fruits considered immature on basis of-		
			Cheek pressure-test reading of more than 15.0 pounds	Suture pressure-test reading of more than 13.5 pounds	Ripening period of more than 8 days		Cheek pressure-test reading of more than 15.0 pounds	Suture pressure-test reading of more than 13.5 pounds	Ripening period of more than 8 days
	1953		Percent	Percent	Percent		Percent	Percent	Percent
RC&H	June 12	7.9	88	88	48	7.6	28	20	0
G	" 15	6.1	24	20	60	6.4	8	16	49
WF	" 15	5.8	20	24	0	6.6	4	4	17
D	" 16	6.2	32	24	90	6.8	8	12	66
T	" 16	5.8	32	24	64	6.8	0	0	9
R	" 16	6.4	32	36	70	6.8	20	12	27
MV	" 17	6.4	8	16	35	7.2	0	4	16
ELD	" 17	6.8	8	20	5	7.0	4	4	0
M	" 18	6.8	8	8	14	7.1	0	4	0
P&C	" 18	6.7	60	60	30	--	--	--	--
P&C	" 18	6.8	60	64	86	7.1	32	44	23
P	" 19	6.5	4	8	22	7.1	4	8	4
R&C	" 19	7.2	4	4	34	7.2	4	4	12
B	" 22	7.1	68	84	84	7.2	16	20	39
Average		6.6	32	34	46	7.0	10	12	20

Table 8.--Early Hiley peaches ripening in various periods at room temperature and the respective ranges in pressure-test readings at harvest, 1953

Period at room temperature	Ripe peaches in-		Range in pressure-test readings at harvest on-	
	Least mature samples	Medium-mature samples	Cheeks	Suture
Days	Percent	Percent	Percent	Percent
2	1	4	10.0 - 11.5	6.5 - 9.5
4	4	13	11.5 - 12.8	9.5 - 11.0
6	17	30	12.8 - 13.7	11.0 - 12.0
8	32	30	13.7 - 14.5	12.0 - 13.5
10	29	19	14.5 - 16.0	13.5 - 14.5
10+	17	1	16.0+	14.5+

Table 9.--Ground color at harvest of Halehaven peaches in least mature and medium-mature samples and percentage immature on basis of proposed pressure-test standards (testing higher than 17.0 pounds on cheeks and 15.0 pounds on suture) and period required for ripening (more than 8 days)

Source of fruits		Harvest	Least mature samples				Medium-mature samples			
Orchard	State	date	Ground color No.	Fruits considered immature on basis of- Cheek pressure-test reading of more than 17.0 pounds	Suture pressure-test reading of more than 15.0 pounds	Ripening period of more than 8 days	Ground color No.	Fruits considered immature on basis of- Cheek pressure-test reading of more than 17.0 pounds	Suture pressure-test reading of more than 15.0 pounds	Ripening period of more than 8 days
		1953		Percent	Percent	Percent		Percent	Percent	Percent
W	Ga.	June 22	6.3	56	40	86	6.7	16	12	27
S	"	" 24	7.1	20	16	53	7.4	4	8	0
PC	"	" 24	6.8	16	16	82	7.3	0	8	0
SB	"	" 25	6.8	44	44	94	6.8	12	16	36
SF	"	" 25	7.2	20	12	71	7.4	0	0	30
CFW	"	" 30	6.0	24	20	89	6.6	0	0	30
MCP	S.C.	July 2	4.2	100	88	100	5.8	88	40	78
C	"	" 3	5.3	92	80	85	7.4	72	76	62
RDT	"	" 6	5.7	84	72	97	8.3	52	24	57
HCC	"	" 6	6.1	92	88	83	8.0	44	24	44
G	"	" 7	5.9	56	52	90	7.4	28	8	22
W	"	" 8	4.4	100	92	75	8.0	72	56	6
P	"	" 10	6.3	44	36	37	7.0	0	24	0
EDM	Md.	Aug. 3	6.5	40	24	12	8.7	20	24	0
UF	W.Va.	" 4	6.2	16	16	0	8.1	8	4	0
MB	"	" 4	7.7	0	0	0	9.2	0	0	0
JJ	"	" 5	5.4	20	12	0	8.8	4	4	0
EG	"	" 5	6.0	4	8	8	7.8	0	0	0
HB	Pa.	" 6	7.0	0	0	4	8.3	4	0	0
W	"	" 6	7.0	0	0	0	9.2	0	0	0
GB	"	" 7	6.0	24	20	0	10.0	4	4	0
	Average		6.2	41	35	51	7.8	20	16	19

Table 10.--Halehaven peaches ripening in various periods at room temperature and the respective ranges in pressure-test readings at harvest, 1953

Period at room temperature	Ripe peaches in-		Range in pressure-test readings at harvest on-	
	Least mature samples	Medium-mature samples	Cheeks	Suture
Days	Percent	Percent	Percent	Percent
2	0	2	13.0 - 14.0	7.5 - 10.5
4	4	22	13.5 - 14.5	10.5 - 12.5
6	23	38	14.5 - 16.0	12.5 - 13.8
8	22	16	16.0 - 17.0	13.8 - 15.0
10	13	13	16.5 - 17.5	14.5 - 15.5
10+	38	6	17.0+	15.0+

Table 11.--Ground color at harvest of Sullivan Elberta peaches in least mature and medium-mature samples and percentages immature on basis of proposed pressure-test standards (testing higher than 17.5 pounds on cheeks and 15.5 pounds on suture) and period required for ripening (more than 8 days).

Source of fruits		Harvest	Least mature samples					Medium-mature samples				
Orchard	State	date	Ground color No.	Fruits considered immature on basis of-				Ground color No.	Fruits considered immature on basis of-			
				Cheek pressure-test reading of more than 17.5 pounds	Suture pressure-test reading of more than 15.5 pounds	Ripening period of more than 8 days			Cheek pressure-test reading of more than 17.5 pounds	Suture pressure-test reading of more than 15.5 pounds	Ripening period of more than 8 days	
		1953		Percent	Percent	Percent			Percent	Percent	Percent	
B&L	Ga.	June 23	6.9	36	32	17		7.6	44	28	42	
WW	"	" 26	7.1	12	12	51		7.0	0	4	30	
V&Y	"	" 29	7.2	4	0	0		7.8	0	0	0	
WB-1	"	July 1	6.4	0	0	0		7.2	0	0	0	
F	"	" 1	6.6	0	0	0		6.8	0	0	0	
MV	"	" 2	6.0	0	0	14		6.5	0	0	0	
WB-2	"	" 2	6.5	0	4	0		6.6	0	0	0	
JFD	"	" 3	--	--	--	--		6.0	0	0	0	
T	"	" 7	7.6	0	0	0		8.3	0	0	0	
Y	S.C.	" 9	3.4	12	4	72		5.6	0	0	5	
F	"	" 10	6.5	28	24	76		7.3	56	48	10	
WCC	"	" 10	7.0	68	68	84		7.1	16	4	61	
JRB	"	" 11	7.1	80	64	76		7.6	44	40	59	
HEC	"	" 13	6.9	76	80	24		7.6	52	64	4	
S	"	" 13	6.6	96	92	88		7.1	64	64	62	
F	"	" 14	7.4	32	32	50		7.5	4	44	0	
LEC	"	" 15	7.4	68	72	14		7.6	20	20	0	
OR	"	" 15	6.7	100	100	55		7.6	80	68	20	
RBJ	"	" 15	6.8	24	68	0		7.5	8	28	0	
G	"	" 16	--	--	--	--		7.5	0	0	0	
G	"	" 17	--	--	--	--		7.7	0	0	0	
ECM	W.Va.	Aug 10	7.1	0	0	0		9.0	0	0	0	
WDB	Md.	" 11	6.3	12	8	0		8.3	20	0	0	
RSD	"	" 12	8.7	0	0	0		9.7	4	0	0	
CCM	Pa.	" 13	6.6	0	0	14		9.8	0	0	0	
HB	"	" 13	6.6	0	0	18		8.7	16	0	0	
	Average		6.8	28	29	28		7.6	16	16	11	

Table 12.--Sullivan Elberta peaches ripening in various periods at room temperature and the respective ranges in pressure-test readings at harvest, 1953

Period at room temperature	Ripe peaches in-		Range in pressure-test readings at harvest on-	
	Least mature samples	Medium-mature samples	Cheeks	Suture
Days	Percent	Percent	Percent	Percent
2	3	14	10.5 - 12.5	6.0 - 10.0
4	18	32	12.5 - 14.5	10.0 - 12.0
6	24	25	14.5 - 16.0	12.0 - 13.3
8	24	15	16.0 - 17.3	13.3 - 15.3
10	14	8	17.3 - 18.0	15.3 - 16.5
10+	14	3	18.0+	16.5+

Table 13.--Ground color at harvest of Elberta peaches in least mature and medium-mature samples and percentages immature on basis of proposed pressure-test standards (testing higher than 16.0 pounds on cheeks and 14.0 pounds on suture) and period required for ripening (more than 8 days).

Source of fruits		Harvest	Least mature samples				Medium-mature samples			
Orchard	State	date	Ground color No.	Fruits considered immature on basis of-			Ground color No.	Fruits considered immature on basis of-		
				Cheek pressure-test reading of more than 16.0 pounds	Suture pressure-test reading of more than 14.0 pounds	Ripening period of more than 8 days		Cheek pressure-test reading of more than 16.0 pounds	Suture pressure-test reading of more than 14.0 pounds	Ripening period of more than 8 days
		1953		Percent	Percent	Percent		Percent	Percent	Percent
R	Ga.	July 1	6.6	0	0	0	6.9	0	0	0
N 1/	"	" 3	6.5	28	40	0	7.0	8	8	0
P 2/	"	" 6	--	--	--	--	7.2	4	0	0
P 2/	"	" 6	--	--	--	--	7.2	0	0	0
RB 1/	"	" 6	6.8	24	36	0	7.8	48	24	0
FV 1/	"	" 5	6.8	0	0	0	7.1	0	0	0
P 1/	"	" 7	6.5	0	0	0	7.0	0	0	0
T 1/	"	" 7	6.4	0	0	0	7.6	0	0	0
P 2/	"	" 8	---	--	--	--	7.8	0	0	0
Y 2/	S.C.	" 9	---	--	--	--	6.4	20	12	0
F 1/	"	" 14	6.8	100	92	72	8.1	48	68	0
X 3/	"	" 16	6.0	44	64	12	--	--	--	--
OC 2/	"	" 17	--	--	--	--	7.2	24	44	72
GTB 2/	"	" 17	--	--	--	--	8.0	44	28	0
HS	"	" 18	--	--	--	--	7.8	88	68	59
OC 2/	"	" 20	--	--	--	--	7.3	16	12	13
GTB 2/	"	" 20	--	--	--	--	7.4	4	16	0
BEG 2/	"	" 20	--	--	--	--	7.9	0	0	0
BEG 2/	"	" 23	--	--	--	--	8.0	0	0	9
OC 2/	"	" 23	--	--	--	--	7.3	0	8	15
HS 2/	"	" 24	--	--	--	--	7.9	8	8	0
OC 2/	"	" 27	--	--	--	--	7.3	0	4	0
ECM	W.Va.	Aug 10	6.8	4	32	49	9.2	28	32	11
JJ	Md.	" 12	8.0	48	0	11	9.7	44	8	0
CEB	Pa.	" 14	6.3	4	8	73	9.6	0	0	19
JJ	W.Va.	" 18	6.3	24	4	62	9.7	24	16	16

Table 13.--Ground color at harvest of Elberta peaches in least mature and medium-mature samples and percentages immature on basis of proposed pressure-test standards (testing higher than 16.0 pounds on cheeks and 14.0 pounds on suture) and period required for ripening (more than 8 days). (Continued)

Source of fruits		Harvest	Least mature samples				Medium-mature samples			
Orchard	State	date	Ground color No.	Fruits considered immature on basis of- Cheek pressure-test reading of more than 16.0 pounds	Suture pressure-test reading of more than 14.0 pounds	Ripening period of more than 8 days	Ground color No.	Fruits considered immature on basis of- Cheek pressure-test reading of more than 16.0 pounds	Suture pressure-test reading of more than 14.0 pounds	Ripening period of more than 8 days
		1953		Percent	Percent	Percent		Percent	Percent	Percent
MB	W.Va.	Aug 18	6.8	0	0	46	9.3	0	0	0
M	Pa.	" 19	6.0	48	16	0	9.4	32	0	0
CCM 2/	"	" 19	---	--	--	--	9.2	4	0	0
	Average		6.6	23	21	23	7.9	16	12	8

1/ Commercially picked peaches subdivided into least and medium-mature samples.

2/ Composite sample of commercially picked peaches at medium maturity.

3/ Composite sample of commercially picked peaches at least maturity.

Table 14.--Elberta peaches ripening in various periods at room temperature and the respective ranges in pressure-test readings at harvest, 1953

Period at room temperature	Ripe peaches in-			Range in pressure-test readings at harvest on-	
	Least mature samples	Medium-mature samples	Commercial samples	Cheeks	Suture
Days	Percent	Percent	Percent	Pounds	Pounds
2	3	18	14	8.5 - 11.0	6.0 - 9.0
4	15	33	27	11.0 - 13.5	9.0 - 11.5
6	21	26	30	13.5 - 15.0	11.5 - 13.0
8	36	16	16	15.0 - 16.0	13.0 - 14.0
10	20	3	6	16.0 - 17.0	14.0 - 15.5
10+	3	1	5	17.0+	15.5+

Table 15.--Maximum period at room temperature required for mature peaches of 7 varieties to ripen and tentative pressure-test standards of maturity

Variety	Maximum period to ripen	Pressure-test standard of maturity for-	
		Cheeks	Suture
	Days	Pounds	Pounds
Dixired	10	16.5	14.0
Redhaven	8 to 9	15.5	13.0
Golden Jubilee	6	17.0	14.0
Early Hiley	8 to 9	15.0	13.5
Halehaven	8	17.0	15.0
Sullivan Elberta	8	17.5	15.5
Elberta	8	16.0	14.0

Table 16.--Maturity and ripeness of peaches at harvest in relation to firmness.

Variety	Pressure-test reading on- Cheeks	Pressure-test reading on- Suture	Ripening period at room temperature	Maturity	Ripeness
	Pounds	Pounds	Days		
Dixired	16.5 +	14.0 +	10 +	Immature	Hard-unripe
	16.5 - 15.5	14.0 - 13.0	10 - 9	Mature-early	Hard-unripe
	15.5 - 14.5	13.0 - 12.0	9 - 7	Mature-shipping	Hard-unripe
	14.5 - 13.0	12.0 - 11.0	7 - 5	Mature-shipping	Hard-unripe
	13.0 - 11.0	11.0 - 9.5	5 - 3	Mature-advanced	Firm unripe
	12.0 - 10.0	9.5 - 7.0	3 - 1	Mature-advanced	Firm unripe
	10.0 - 5.0	7.0 - 3.0	1	Overmature	Firm ripe
	5.0 - 2.0	3.0 - 1.0	0	Overmature	Firm ripe to ripe
Redhaven	15.5 +	13.0 +	9 +	Immature	Hard-unripe
	15.5 - 14.0	13.0 - 11.5	9 - 7	Mature-early	Hard-unripe
	14.0 - 13.0	11.5 - 10.5	7 - 5	Mature-shipping	Hard-unripe
	13.0 - 12.0	10.5 - 9.0	5 - 3	Mature-shipping	Hard-unripe
	12.0 - 10.5	9.0 - 8.0	3 - 1	Mature-advanced	Firm unripe
	10.5 - 5.0	8.0 - 3.0	1	Overmature	Firm ripe
	5.0 - 2.0	3.0 - 1.0	0	Overmature	Firm ripe to ripe
Golden Jubilee	17.0 +	14.0 +	6 +	Immature	Hard-unripe
	17.0 - 15.5	14.0 - 12.5	6 - 5	Mature-shipping	Hard-unripe
	15.5 - 13.5	12.5 - 10.0	5 - 3	Mature-shipping	Hard-unripe
	13.5 - 12.0	10.0 - 8.0	3 - 1	Mature-advanced	Firm unripe
	12.0 - 5.0	8.0 - 3.0	1	Overmature	Firm ripe
	5.0 - 1.0	3.0 - 1.0	0	Overmature	Firm ripe to ripe
Early Hiley	15.0 +	13.5 +	9 +	Immature	Hard-unripe
	15.0 - 13.5	13.5 - 12.0	9 - 7	Mature-early	Hard-unripe
	13.5 - 12.5	12.0 - 11.0	7 - 5	Mature-shipping	Hard-unripe
	12.5 - 11.5	11.0 - 9.5	5 - 3	Mature-shipping	Hard-unripe
	11.5 - 10.0	9.5 - 6.5	3 - 1	Mature-advanced	Firm unripe
	10.0 - 5.0	6.5 - 3.0	1	Overmature	Firm ripe
	5.0 - 1.0	3.0 - 1.0	0	Overmature	Firm ripe to ripe
Halehaven	17.0 +	15.0 +	8 +	Immature	Hard-unripe
	17.0 - 16.0	15.0 - 14.0	8 - 7	Mature-early	Hard-unripe
	16.0 - 15.0	14.0 - 12.5	7 - 5	Mature-shipping	Hard-unripe

Table 16.--Maturity and ripeness of peaches at harvest in relation to firmness (Cont.)

Variety	Pressure-test reading on-		Ripening period at room temperature	Maturity	Ripeness
	Cheeks	Suture			
	Pounds	Pounds	Days		
	14.0 - 13.0	10.5 - 7.5	3 - 1	Mature-advanced	Firm unripe
	13.0 - 5.0	7.5 - 3.0	1	Overmature	Firm ripe
	5.0 - 1.0	3.0 - 1.0	0	Overmature	Firm ripe to ripe
Sullivan	17.5 +	15.5 +	8 +	Immature	Hard-unripe
Elberta	17.5 - 16.0	15.5 - 13.5	8 - 7	Mature-early	Hard-unripe
	16.0 - 14.5	13.5 - 12.0	7 - 5	Mature-shipping	Hard-unripe
	14.5 - 12.5	12.0 - 10.0	5 - 3	Mature-shipping	Hard-unripe
	12.5 - 10.5	10.0 - 6.0	3 - 1	Mature-advanced	Firm unripe
	10.5 - 5.0	6.0 - 3.0	1	Overmature	Firm ripe
	5.0 - 1.0	3.0 - 1.0	0	Overmature	Firm ripe to ripe
Elberta	16.0 +	14.0 +	8 +	Immature	Hard-unripe
	16.0 - 15.0	14.0 - 13.0	8 - 7	Mature-early	Hard-unripe
	15.0 - 13.5	13.0 - 11.5	7 - 5	Mature-shipping	Hard-unripe
	13.5 - 11.0	11.5 - 9.0	5 - 3	Mature-shipping	Hard-unripe
	11.0 - 8.5	9.0 - 6.0	3 - 1	Mature-advanced	Firm unripe
	8.5 - 5.0	6.0 - 3.0	1	Overmature	Firm ripe
	5.0 - 1.0	3.0 - 1.0	0	Overmature	Firm ripe to ripe